less than one-half the dimensions of those required when coal is employed; the avoiding the necessity of using lime to purify the gas, a process both troublesome and expensive; the comparative freedom of oil gas, from that offensive smell which predominates in coal gas, from the presence of sulphuretted hydrogen, which is but partially separated, by the purifying process, in the way it is actually conducted.

Those persons who have visited London, or Baltimore, and who have had an opportunity of comparing the odour emitted by the coal gas in those places, with that from the oil gas in New York, must be sensible of the very great difference between the two. At coal gas works, they tell you that this is accidental, but this information affords little consolation, as it is the accident of every day. We perceive that we are unwittingly travelling from Pittsburgh, to which we at first intended to have confined our remarks, leaving their application to other cities, to the understanding of the reader; we have taken a glance at London. Baltimore, and New York; and although we have not mentioned, we have thought of Philadelphia, and whilst we hope to see the brilliant gas light, illuminating our streets and stores, we also hope that they will never be polluted by the nuisance of coal gas. In Pittsburgh, where bituminous coal is generally used as fuel, the force of this objection is greatly diminished, and its cheapness will probably insure it a preference to all other substances. The high price of oil, in England, has not even there prevented the extensive use of it in gas works, and on our own sea-board, it can be afforded at a less price than that assigned to Seneca oil by the writer of the observations. It has been purchased in New York, by the gas company, at less than 25 cents per gallon, and, it is said, can generally be so purchased, in the large way.

The suggestions made respecting the obtaining of a combustible gas from the salt wells, which are generally filled with it, are, we believe, founded in an imperfect knowledge of the chemical constitution of the gases so produced; but as this is a subject with which the writer does not pretend to be intimate, the suggestion was perfectly natural; this gas affords an extremely feeble flame, and were it possible to transport it to the city, without incurring an expense manyfold greater than that of generating gas from coal, or from oil, it would scarcely make darkness visible. All the species of carburetted hydrogen, are lighter than atmospheric air, and if that contained in the wells is heavier, this must arise from its being contaminated with carbonic acid, (fixed air) which would still decrease its illuminating power.

On Speculums for Reflecting Telescopes. By the Editor.

The casting, grinding and polishing the speculums for reflecting telescopes, are mechanical operations of very great nicety, requiring a much larger portion of care and skill, than the grinding and polishing of glass lenses. There are but few manufacturers in England, whose reflecting telescopes are in much repute, although they are to be found at most of the Philosophical Instrument makers; a telescope of this kind may appear at first to be good, but in a short space of time may afford a very indistinct view of such objects as are seen through it, in consequence of the tarnishing of the metallic reflectors. Different workmen have used different mixtures, although they almost uniformly consist, principally, of a mixture of tin and copper, to which other ingredients are added, and in the proportions of which variations are made. A good speculum must be perfectly compact, so that no pores can be discovered in it by the microscope; it must be sufficiently hard to take a fine polish, and to protect it from being readily scratched; it must not be liable to tarnish in the air, as this will effectually destroy its usefulness, and it must possess the property of reflecting nearly all the light which falls upon it. We have assisted in the operations of grinding and polishing, and intend hereafter to give such directions, as shall enable those who have patience, and skill, to perform them themselves. But few attempts of the kind have been made in this country, the demand for such telescopes having been but small. The first reflecting telescope made in the United States, was by the late Jotham Fenton, of New Haven, Connecticut; a man of much mechanical ingenuity, and of untiring patience. He followed the directions given in 'Imison's School of Arts,' and produced a good instrument;—this was about thirty years ago.

We published, in the last number, an article on the grinding and polishing of lenses, and design to give such further information thereon as will render the operation quite familiar. We now commence the republication of the observations on speculums, which originally appeared in the Nautical Almanac, for 1787, and which is still considered as one of the most useful essays upon this subject.

On Casting, Grinding, and Polishing Speculums, for Reflecting Telescopes, Microscopes, &c. By the Rev. JOHN EDWARDS, B. A.

On the best composition for Reflecting Specula.—I found that thirty-two ounces of copper, with fifteen or sixteen ounces of grain tin (according to the purity of the copper,) with the addition of a little brass and arsenic, viz.—one ounce of each to the above proportion of copper and tin, will form a metal, capable, when polished in a proper manner, of reflecting much more light than any other metal that has yet been offered to the public. When I say that the proportion of tin, is from fifteen or sixteen, to thirty-two ounces of copper, I would be understood that the proportion of tin will not always be accurately the same, as copper will take more or less tin to saturate it, according to its purity. It might be of use, previously, to purify the copper as much as possible. A very little experience in these matters will enable any one to know when the copper is completely saturated, as the composition will, if broken, appear of a most beautiful, bright and glossy nature, very much resembling the fine face of quicksilver. My method to ascertain that point accurately is to melt thirty-two ounces of copper, and to add to it, when sufficiently fused,